**IT Applications Unit 3, AOS 1, Online Communities**

1. Complete the following, from pgs, 18-28: **Network hardware and software**

**Networks are classified according to below and we will study the following:**

1. **Network Categories: LAN, WAN**
2. **Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet**
3. **Network communication standards**
4. **Network hardware and software**
5. **Transmission media**
6. **Network security**

**Network hardware and software**

**Network Operating systems**

1. Describe the role of the network operating system.

The network Operating system is software that controls the traffic on the network and defines how devices will communicate with each other. It consists of two components – server software and client software.

1. What are the typical tasks of network server software?

It is responsible for tasks such as controlling file access, managing print queues, keeping track of users through their ID and passwords, authenticating access to network servers and maintaining a log of network usage and problems.

1. What is the role of network client software?

Client software is installed on each workstation and establishes a connection, through the network interface card, between each workstation and any other devices connected to the network. The workstations then use the network operation system to create data packets and transmit them.

1. List the 3 providers of network operating systems.

The three providers of network operating systems for PCs are Microsoft Windows Vista, Windows 7 and Windows Server 2008; Novell and Apple. These are all designed to recognise the other severs so a user can still access machines on other networks.

**Web client software**

1. List the typical client software

Client software includes web browsers, emails, videoconferencing and instant messaging.

**Software for setting up websites**

1. Describe the role of http protocol.

Hypertext Transfer Protocol is a standard for transmitting and receiving information on the internet. All servers and computers on the internet must follow a request and response procedure so that information flows quickly and easily between servers and clients.

1. What is the role of web server software?

Web server software converts the http protocols into content, usually in the form of html documents, images or other resources. A client’s browser sends the web server software a ‘get’ request and it then serves the client with the path to the web site that they requested.

1. What is the role of a proxy server?

A proxy server sits between the client and the internet and directs pages requested from the internet to the client’s IP address. It also stores all the web pages so that if the same page is requested again the proxy server can serve the page instead of it having to be served from the internet, improving the speed that the page is delivered.

* 1. What are the advantages of using a proxy server?

Using a proxy server can increase the speed in which a web page is served to the client because a history of the pages requested is stored in the proxy server, and if the page has been requested before it can be served straight from the proxy server instead of having to go through the internet.

1. Describe the role of the following software:
   1. SMTP

Simple Mail Transfer Protocol is used on electronic mail servers and controls the sending and receiving of emails to the client.

* 1. POP3

Post office protocol is used to store messages. When the SMTP receives emails it passes the message onto the POP3 where it is stored until the client requests it.

* 1. FTP

File Transfer Protocol enables the uploading and downloading of files between the internet and the computer. It is located on the same server as the SMTP and the POP3, and uses internet protocol to enable file transfers.

* 1. Web software applications

Web software applications are programs designed for use on a website, including blogging software, forums and wikis.

**Cross-platform web software**

1. What is meant by a Cross-platform application? List egs.

A cross platform application uses an execution engine to run on all machines. This is so the system does not have to rely on the microprocessor and operating system. Examples of these applications are Flash and Java

1. What is adobe flash?

Adobe Flash is a software tool that enables website developers to combine interactive content with text, 3D graphics, audio and video. Using these tools, developers can create moving graphics and short movie like sequences, as well as slide shows and other media that can be embedded into a website.

**Network Hardware**

Describe the characteristics and role of the following network hardware devices:

1. Network interface card

NIC is used as a link to a computer or resource network. It is connected to the network by wires, radio waves, infra-red light waves, microwave and fibre-optic cable.

1. Wireless access point

The AP is used to connect a device capable of wireless communication to a wired or wireless network. It is often also connected to an Ethernet network. When several APs are used on the same network, a device can switch from one to the next if the initial AP becomes out of range, this is called roaming

1. Switches

A switch is a device that that stores the address of every device down each wire leading from the switch. When a device talks to a switch, it checks the first packet for the destination device’s media controller access (MAC) address. The switch then sends the packet to the destination device.

1. Routers

A router is a communications device that allows several remote LANs to connect over a WAN, or to connect several LANs into one bigger LAN. The router also allows the devices on one LAN to access the files of another. Routers communicate with each other to send a packet through the LANs on the most efficient route.

1. modems

A modem is a device that is used to send a computer’s digital signal over a telephone line. It modulates the digital data into an analogue signal which is compatible with the telephone wires when sending the signal, and vice versa when receiving. A dial up modem is used with regular telephone lines to connect to the ADSL and ISDN network modems.

For each of the following modem types, in a table indicate the following:

|  |  |
| --- | --- |
|  | Download speed |
| Dial Up Modem | 56 Kbps |
| DSL | 3 Mbps |
| ADSL & ADSL2+ | 8 & 20 Mbps |
| Cable Modems | 30 Mbps |

Modem download speed

1. dial up modem

ii) digital modems:

1. DSL
2. ADSL & ADSL 2 +
3. cable modems
4. How does a digital modem differ from a dial-up modem?

A dial-up modem is used to transfer the digital signal from the computer into an analogue signal so it can be sent along the telephone cables, and then back into digital at the other end. However, digital modems connect a computer to the internet, and both use digital signals, so conversion isn’t necessary. A dial-up modem will not work with an ADSL connection.